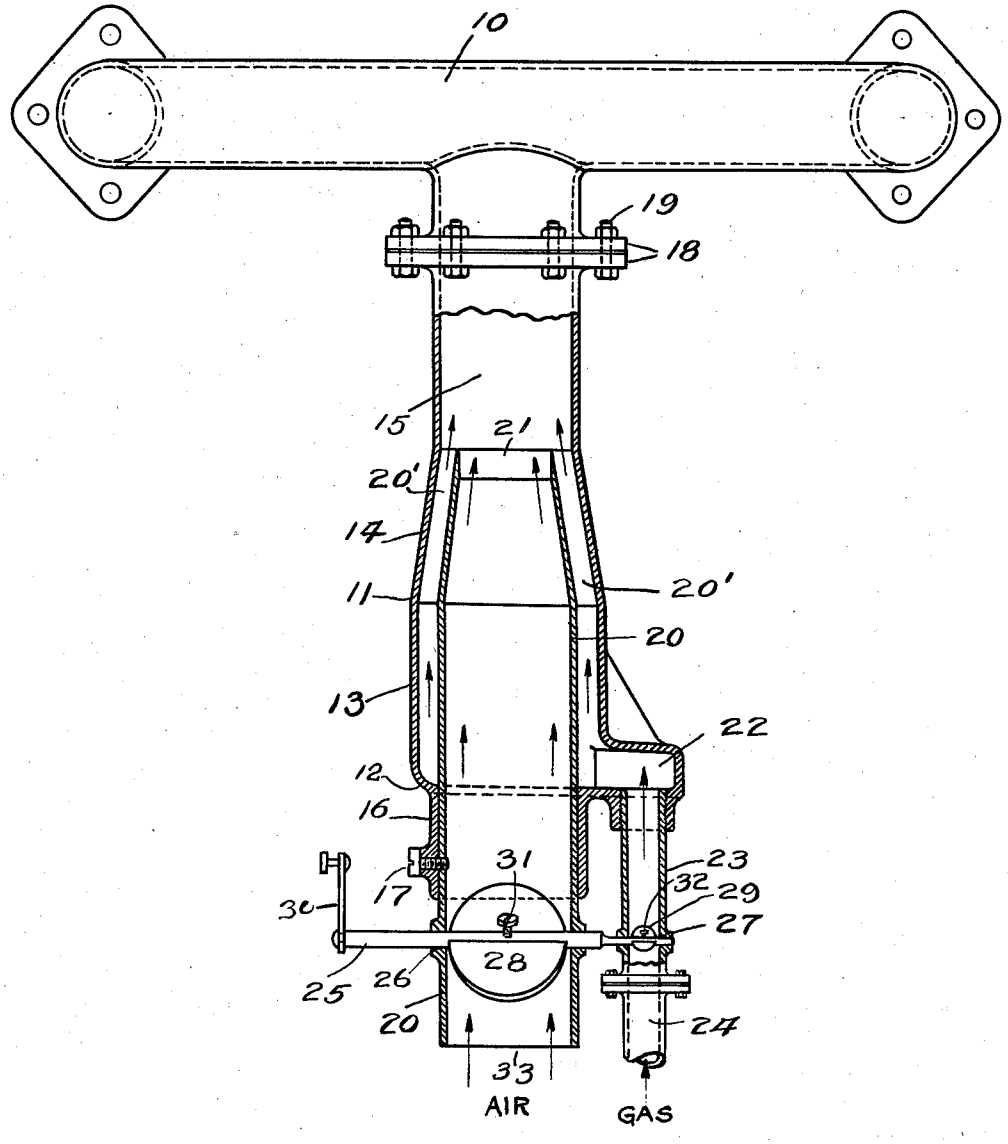
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FUEL GAS AND AIR CARBURETOR

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FUEL-GAS AND AIR CARBURETOR

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4 Claims. (Cl. 48—180)

My invention relates broadly to gas carburetors for internal combustion engines, and more particularly to a manifold for mixing of a gas carburetor fuel with air.

The principal object of my invention is to provide a fuel mixing chamber that will produce a constant air-gas ratio at all engine speeds and under varying load conditions.

Another object is to provide a throttle valve for both air and gas passages that are controlled by a single shaft connection.

It is also an object of my invention to provide a device that is rugged, light in weight, and one that can be easily installed and manipulated.

The figure of the drawing is a view partly in elevation and partly in section of my improved carburetor, shown applied to a conventional intake manifold of an internal combustion engine.

My device consists of an outer shell or gas receiving member 11 provided with a receptacle portion 13 that has a tapered section 14 terminating into a reduced neck or mixing chamber 15 and an air intake conduit 20 with the air intake 33. The conduit 20 is secured by screw 17 to a sleeve 16 of member 11. The outer shell or gas receiving member 11 is provided with an annular wall 12, which forms a bottom for the same. The conduit 20 has a Venturi nozzle 21 and, when the conduit is placed in position, it extends into the shell 11 with the end of nozzle 21 at the throat of mixing chamber 15. The space between the outer wall of receptacle portion 13 and the wall of conduit 20 forms the gas receptacle 20' that is provided with a suitable intake port 22. Threaded into port 22 is a gas supply duct 23 that is in turn connected with pipe 24 leading from the conventional type gas supply control means (not shown).

Both the air and gas supply used in producing a suitable fuel mixture in chamber 15 are controlled by a single shaft 25 that has, in the air intake conduit 20, valve 28 secured to it by set screw 31 and that has, in the gas duct 23, the valve 29 secured to it by screw 32. The shaft 25 is suitably mounted in bearing apertures 26 in the walls of conduit 20 and bearing apertures 27 in the duct 23. A crank 30 is also secured to the end of shaft 25 so that valves 28 and 29 can be simultaneously operated by moving the crank. Thus, operating both valves by the same crank and shaft maintains a constant ratio of fuel-gas to air in the mixture in chamber 15 at all engine speeds, varying load conditions and independent of the rate at which the mixture leaves the chamber.

My improved device can be readily attached to a conventional type manifold 10 by any suitable way, such as flanges 18 and bolts 19.

In the operation of my device, gas as such, or hydrocarbon vapor is drawn past the valve 29 where it passes through port 22 into the concentrically arranged receptacle 20' which is of sufficient volume to allow expansion of the gas, thereby slowing down its velocity. The gas is then drawn off in a smooth even flow by suction created by the air flow passing through the Venturi nozzle 21 of conduit 20 and the air and fuel gas is mixed in chamber 15.

The arrangement of the air intake 33 of inner member 20 is such that the air, after passing valve 28, flows in a smooth, evenly distributed path through the Venturi nozzle 21 whereby the gas is also drawn into the mixing chamber in a flow evenly distributed throughout the chamber.

It will be noted from the foregoing operation of my fuel mixing device that the fuel gas is measured as it is throttled and the fuel gas and air are mixed after being throttled.

It will be understood that the above description and accompanying drawing comprehend only the general and preferred embodiment of my invention, and that various changes in construction, proportion and arrangement of parts may be made within the scope of the appended claims, without sacrificing any of the advantages of this invention.

I claim:

1. In a fuel gas carburetor for internal combustion engines, in combination, a mixing chamber having cylindrical walls, a fuel gas conduit having an outer wall of greater diameter in cross-section than said mixing chamber and positioned co-axially below said mixing chamber, a frusto-conical portion connecting said mixing chamber and said fuel gas conduit, an air supply conduit extending through said fuel gas conduit and positioned co-axially thereof, a second frusto-conical portion connected to said air supply conduit, the small end of said frusto-conical members terminating at the intersection of said mixing chamber, an annular wall for closing the lower end of said fuel gas conduit, a fuel gas duct in communication with the lower portion of said fuel gas conduit, and control means in said fuel gas duct and said air supply conduit for supplying a constant ratio of fuel gas and air to the carburetor.

2. In a fuel-gas and air carburetor for internal combustion engines, in combination, a mixing chamber of uniform cross-section area, two con-

centric coincident frusto-conical hollow portions of different cross-sectional areas, one within the other with a space intermediate them, the smaller diameter of the outer one of said portions being substantially of the area of and leading into said mixing chamber, a fuel-gas duct leading into the space between said portions, an air inlet leading into the larger diametered end of the inner one of said portions, and control means in said duct and inlet for controlling the rate of flow through said duct and inlet, whereby the pressure, velocity and fuel vapor carrying characteristics of the mixture flowing through the mixing chamber are maintained substantially constant.

3. The fuel-gas and air carburetor combination of claim 2, characterized by the smaller end of the inner hollow portion being of reduced thickness and whose thinnest portion is at the termination of said portion.

4. The fuel-gas and air carburetor combination of claim 3, characterized by the smaller end of the inner hollow portion being reduced in thickness at its smaller end to a knife edge.

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